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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/622,360	08/16/2000	Keiji Shigesada	Q60187	3575

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EXAMINER

LUK, EMMANUEL S

ART UNIT PAPER NUMBER

1722

DATE MAILED: 05/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/622,360

Applicant(s)

SHIGESADA ET AL.

Examiner

Emmanuel S. Luk

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/3/03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- ☐ Interview Summary (PTO-413) Paper No(s). _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 6 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Miyairi.

Miyairi teaches the claimed apparatus with a gate from the tip (5a), a recess (4) that acts as a reservoir, a compression core (6) that acts as a cut punch that is located on a movable die (2), the cut punch moves towards the gate while the material is still in the molten state (Col. 3, lines 60-65). The molten state of the material denotes that there is a hot runner due to the hot nozzle (5). The structure is capable of operating regardless of the material condition. The condition of the material when the cut punch is moved is a process limitation of a structure and is therefore an intended use of the apparatus.

2. Claims 6 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Suekichi.

Suekichi teaches the claimed apparatus with a cavity (3), a sprue (2) and disc gate (2), a punch that advances (4) upwards towards the gate while the material is still in its molten state, causing some of the material to flow back into the sprue and another part into the cavity, the recess (Fig. 1, 2) acting as a reservoir opposite the punch. The molten state of the material denotes that the sprue acts as a hot runner for the material to be introduced. The structure is capable of operating regardless of the material

condition. The condition of the material when the cut punch is moved is a process limitation of a structure and is therefore an intended use of the apparatus.

3. Claim 15 rejected under 35 U.S.C. 102(b) as being anticipated by Miyairi.

Miyairi teaches the claimed apparatus having a fixed and movable dies (1, 2), runner (7) and gate (8), a cavity (3) and resin (9) that remains in the recess section, the communicating portion between the recess and the cavity is formed when the cut punch (6) is not moved to close the gate. The movement of the cut punch depending on the condition of the material is a process limitation of a structure and is therefore an intended use of the apparatus.

4. Claim 15-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Takahashi.

Takahashi teaches the claimed apparatus having a fixed and movable dies (43, 52), runner via injection hole (46), the material flow (102) through the gate, the material (98) forming inside the cavity and the compressed resin (10) formed in the reservoir section, the communicating portion between the reservoir and the cavity is formed when the cut punch (54) is not moved to close the gate. The cut punch having a distal end with undercuts (Fig. 3A-3C) and a pin (55) that moves independently of the cut punch via driving means (Col. 5, lines 46-58) located within the cut punch. The movement of the cut punch depending on the condition of the material is a process limitation of a structure and is therefore an intended use of the apparatus.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1-3, 5, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyairi in view of Kadoriku et al, Ikuo and Kunio.

Miyari teaches the claimed apparatus as shown in the 102 rejection above.

Miyairi fails to teach a plurality of cavities, resin reservoirs and cut punches, and valve gate structure to close the gate and moving the cut punch when the inner portion of the resin material is still molten.

Kadoriku et al teaches an injection molding method for thin components having a sprue region (5a), in the upper mold (2), the resin material is filled into the cavity (5) and is cooled down and gradually cured from the sides near the molds (2,4), in the cooling process, the gate cut punch (8) is lifted up separating the sprue portion (B1) from the disk substrate (B) formed of the resin material shaped in the cavity (5) (Col. 4, lines 1-

23). It would have been obvious to one of ordinary skill in the art to operate the apparatus to wait until cooling has occurred before operating the gate cut punch.

Kadoriku teaches the partial curing of the resin material near the molds and one skilled in the art can determine that the inner portion of the materials is still molten due to heat transfer where it is cooler at the portions of the material that is closest to the molds.

Ikuo teaches the simultaneous molding of a plurality of products by a plurality of cavities and cut punches. This is a multiplied effect of producing a plurality of products via simultaneously molding of a plurality of elements. In regards to claim 7, the plural pairs of the elements is a plurality of the elements.

Kunio teaches a valve gate structure as a valve pin (26) that moves forward to cut off the flow of the material (R) to the gate (23) as it joins with gate closing part (33) to prevent material from flowing into the cavity (3).

It would have been obvious to one of ordinary skill in the art to modify Miyairi with have a plurality of cavities, resin reservoirs and cut punches as taught by Ikuo to mold a plurality of molded products, a valve gate structure as taught by Kunio to shut off the flow of materials to the gate and actuating the gate cut punch as taught by Kadoriku with the inner portion still in the molten state thus cutting down on the cycle time of the apparatus.

In regards to claim 5, the resin reservoir corresponding to a shape of the opening of the resin molded product, this is a change in form or shape of the reservoir to conform to the product. Additionally, the change in depth for the movement of the cut

punch into the reservoir is merely a change in shape and size. In re Dailey et al, 149 USPQ 47 (CCPA 1966).

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyairi in view of Kadoriku et al, Ikuo and Kunio as applied to claims 1-3, 5, 13 and 14 above, and further in view of Ohno et al.

Miyairi fails to teach a valve gate.

Ohno teaches a valve gate (14) that acts to stop to the flow of material to the cavity.

It would have been obvious to one of ordinary skill in the art to modify Miyairi with a valve gate as taught by Ohno because it helps control the flow of material to the cavity.

9. Claims 7 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyairi in view of Ikuo and Kunio.

Miyari teaches the claimed apparatus as shown in the 102 rejection above.

Miyairi fails to teach a plurality of cavities, resin reservoirs and cut punches, and valve gate structure to close the gate.

Ikuo teaches the simultaneous molding of a plurality of products by a plurality of cavities and cut punches. This is a multiplied effect of producing a plurality of products via simultaneously molding of a plurality of elements. In regards to claim 7, the plural pairs of the elements is a plurality of the elements.

Kunio teaches a valve gate structure as a valve pin (26) that moves forward to cut off the flow of the material (R) to the gate (23) as it joins with gate closing part (33) to prevent material from flowing into the cavity (3).

It would have been obvious to one of ordinary skill in the art to modify Miyairi with have a plurality of cavities, resin reservoirs and cut punches as taught by Ikuo to mold a plurality of molded products, and a valve gate structure as taught by Kunio to shut off the flow of materials to the gate.

In regards to claims 10 and 11, the resin reservoir corresponding to a shape of the opening of the resin molded product, this is a change in form or shape of the reservoir to conform to the product. Additionally, the change in depth for the movement of the cut punch into the reservoir is merely a change in shape and size. In re Dailey et al, 149 USPQ 47 (CCPA 1966).

10. Claims 1-3, 5, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suekichi in view of Kadoriku et al, Ikuo and Kunio.

Suekichi teaches the claimed apparatus as shown in the 102 rejection above.

Suekichi fails to teach a plurality of cavities, resin reservoirs and cut punches, and valve gate structure to close the gate and moving the cut punch when the inner portion of the resin material is still molten.

Kadoriku et al teaches an injection molding method for thin components having a sprue region (5a), in the upper mold (2), the resin material is filled into the cavity (5) and is cooled down and gradually cured from the sides near the molds (2,4), in the cooling

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process, the gate cut punch (8) is lifted up separating the sprue portion (B1) from the disk substrate (B) formed of the resin material shaped in the cavity (5) (Col. 4, lines 1-23). It would have been obvious to one of ordinary skill in the art to operate the apparatus to wait until cooling has occurred before operating the gate cut punch.

Kadoriku teaches the partial curing of the resin material near the molds and one skilled in the art can determine that the inner portion of the materials is still molten due to heat transfer where it is cooler at the portions of the material that is closest to the molds.

Ikuo teaches the simultaneous molding of a plurality of products by a plurality of cavities and cut punches. This is a multiplied effect of producing a plurality of products via simultaneously molding of a plurality of elements. In regards to claim 7, the plural pairs of the elements are a plurality of the elements.

Kunio teaches a valve gate structure as a valve pin (26) that moves forward to cut off the flow of the material (R) to the gate (23) as it joins with gate closing part (33) to prevent material from flowing into the cavity (3).

It would have been obvious to one of ordinary skill in the art to modify Suekichi with have a plurality of cavities, resin reservoirs and cut punches as taught by Ikuo to mold a plurality of molded products, and a valve gate structure as taught by Kunio to shut off the flow of materials to the gate and actuating the gate cut punch as taught by Kadoriku with the inner portion still in the molten state thus cutting down on the cycle time of the apparatus.

In regards to claim 5, the resin reservoir corresponding to a shape of the opening of the resin molded product, this is a change in form or shape of the reservoir to

conform to the product. Additionally, the change in depth for the movement of the cut punch into the reservoir is merely a change in shape and size. In re Dailey et al, 149 USPQ 47 (CCPA 1966).

11. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suekichi in view of Kadoriku et al, Ikuo and Kunio as applied to claims 1-3, 5, 13 and 14 above, and further in view of Ohno et al.

Suekichi fails to teach a valve gate.

Ohno teaches a valve gate (14) that acts to stop to the flow of material to the cavity.

It would have been obvious to one of ordinary skill in the art to modify Suekichi with a valve gate as taught by Ohno because it helps control the flow of material to the cavity.

12. Claims 7 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suekichi in view of Ikuo and Kunio.

Suekichi teaches the claimed apparatus as shown in the 102 rejection above.

Suekichi fails to teach a plurality of cavities, resin reservoirs and cut punches, and valve gate structure to close the gate.

Ikuo teaches the simultaneous molding of a plurality of products by a plurality of cavities and cut punches. This is a multiplied effect of producing a plurality of products

via simultaneously molding of a plurality of elements. In regards to claim 7, the plural pairs of the elements are a plurality of the elements.

Kunio teaches a valve gate structure as a valve pin (26) that moves forward to cut off the flow of the material (R) to the gate (23) as it joins with gate closing part (33) to prevent material from flowing into the cavity (3).

It would have been obvious to one of ordinary skill in the art to modify Suekichi with have a plurality of cavities, resin reservoirs and cut punches as taught by Ikuo to mold a plurality of molded products, and a valve gate structure as taught by Kunio to shut off the flow of materials to the gate

In regards to claims 10 and 11, the resin reservoir corresponding to a shape of the opening of the resin molded product, this is a change in form or shape of the reservoir to conform to the product. Additionally, the change in depth for the movement of the cut punch into the reservoir is merely a change in shape and size. In re Dailey et al, 149 USPQ 47 (CCPA 1966).

13. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miraiyi in view of Takahashi.

Miraiyi teaches the claimed apparatus as shown in the 102 rejection above.
Miraiyi fails to teach an undercut.

Takahashi teaches an apparatus having a cut punch and an undercut.

It would have been obvious to one of ordinary skill in the art to modify Miraiyi with an undercut as taught by Takahashi because it allows for the cut punch to allow for easy removal (Col. 6, lines 8-14).

14. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suekichi in view of Takahashi.

Suekichi teaches the claimed apparatus as shown in the 102 rejection above. Suekichi fails to teach an undercut.

Takahashi teaches an apparatus having a cut punch and an undercut.

It would have been obvious to one of ordinary skill in the art to modify Miraiyi with an undercut as taught by Takahashi because it allows for the cut punch to allow for easy removal (Col. 6, lines 8-14).

Response to Arguments

15. Applicant's arguments with respect to claims 1-12 have been considered but have been unpersuasive. The applicants have argued that Miraiyi and Suekichi both fails to teach the invention in that the cut punch is moved when the material is still in the molten state while the invention teaches that it is partially solidified. This is merely a process limitation on the apparatus claims and does not further limit the claims structurally, it is therefore an intended use of the apparatus.

In response to the applicant's arguments concerning the method claims, Miraiyi and Suekichi are combined with Kadoriku et al to teach the gate cut punch moving into the reservoir when the material is cured on the sides closest to the mold.

In response to applicant's argument concerning the apparatus claims that Miraiyi and Suekichi teaches moving the cut punch when the material is only in the molten state, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

The remaining arguments concerning the dependent claims 2-5 and 6-12 are all based on the issue of Miyairi and Suekichi. The arguments are considered moot due to the argument above.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel S. Luk whose telephone number is (703) 305-1558. The examiner can normally be reached on Monday through Friday 8 to 4.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on (703) 308-0457. The fax phone

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numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

E.L.
April 29, 2003


W. L. WALKER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700